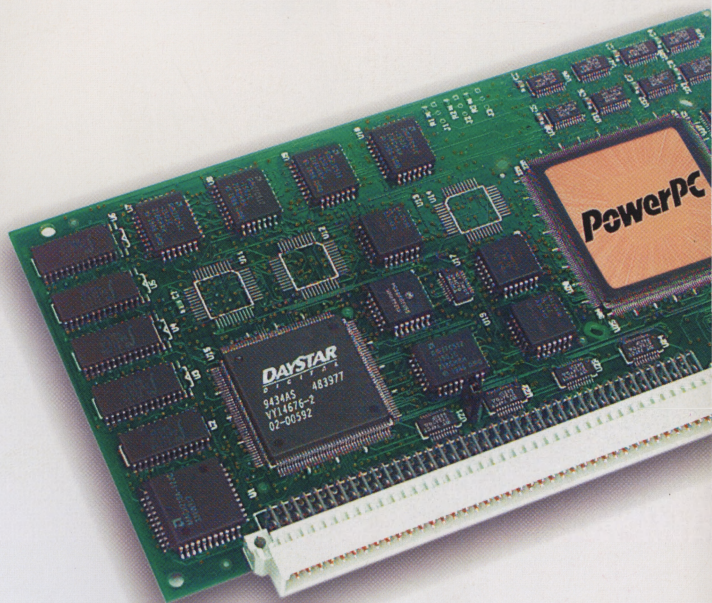


# TURBO 601™

## POWERPC UPGRADE CARD




## READ ME NOTICE

# IMPORTANT!

Be sure to check the "Last Minute Additions & Info" file located on the DayStar disk for any additional late breaking news or changes.

### Apple System Update

The Turbo 601 is fully compatible with System 7.5, but before installing Apple's new System Update for System 7.5, we recommend that users obtain and install DayStar's "Turbo 601 Control 1.1," which is due in April. If you have already installed Apple's update, simply remove the System 7.5 Update file from the System Folder before installing the Turbo 601. You should then upgrade to "Turbo 601 Control 1.1" when it becomes available and then reinstall the System Update software.

*Note: If you failed to remove the System 7.5 Update before installing the Turbo 601, simply zap your parameter RAM by holding down the -Option-P-R keys simultaneously while starting the Mac and continue holding them down until the machine restarts. Next, remove the System 7.5 Update file and turn the Turbo 601 on from the Turbo 601 Control panel and restart your machine.*

Turbo 601 Control 1.1 will be available from the following sources:

#### **DayStar:**

Tech Support: 404-967-2077 • BBS: 404-967-2978

#### **AppleLink:**

Third Parties; Third Parties A-G; DayStar Digital

#### **America Online:**

Keyword: DayStar

#### **CompuServe:**

Macintosh A Vendor Forum DayStar Digital Section 6

#### **GEnie:**

Type "M606,1" then "SET5" Page 606,2 - Category 5

#### **eWorld:**

Keyword: DayStar

**DAYSTAR**  
DIGITAL

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## About the Turbo 601

**About the Turbo 601**

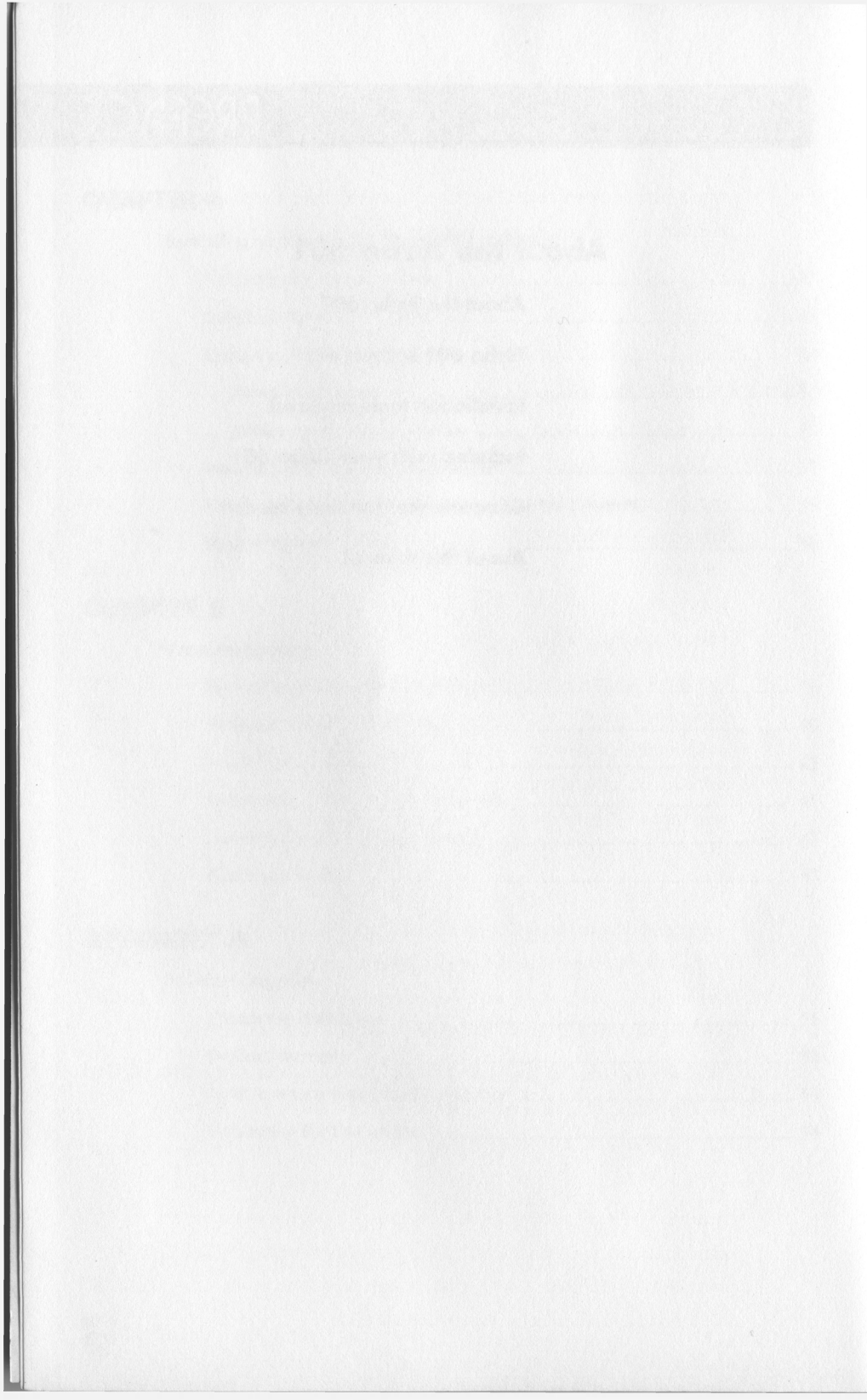
**Turbo 601 software**

**Installation tools required**

**Included with your Turbo 601**

**Complete the warranty card**

**About this manual**



Thank you for purchasing a DayStar product. You have purchased a performance upgrade with unsurpassed compatibility, reliability and performance. The Turbo 601 substantially increase Macintosh system speed and responsiveness. Users benefit through increased productivity - complete more work in a day or spend the time saved to improve work quality.

## About the Turbo 601

The Turbo 601 is based on the award winning Turbo 040 design and provides even greater performance with its PowerPC 601 CPU. The PowerPC 601 is part of a family of high performance processors developed by Apple, IBM and Motorola. The PowerPC follows a Reduced Instruction Set Computer (RISC) architecture that provides significantly greater performance than the Complex Instruction Set Computer (CISC) architectures found in the original Apple Macintoshes and IBM compatibles.

Applications must be written with the PowerPC in mind to fully utilize its performance capability. Such software is referred to as being "native," because it is written in the PowerPC's native language. When running older, non-native software on a PowerPC-equipped machine, it must run in a slower "emulation" mode. This will result in performance comparable to a low end 68040 Macintosh.

The Turbo 601 includes genuine Apple ROMs (Read Only Memory) for 100% compatibility with Power Macintosh compatible software and hardware. The Turbo 601 also comes standard with a 256K secondary cache that allows the card to operate at the maximum possible performance. The Turbo 601 is available in models that support the Macintosh IIci, IIvi, IIvx and Performa 600.

The Turbo 601 provides a simple plug and play installation. Pop in the card, install System 7.5 or greater, and run the DayStar installer. It's that easy!

The Turbo 601 gives users the best of both worlds. Native applications can run at full speed using the board's PowerPC processor. Non-native or emulated applications generally run at slow 68040 speeds, which is still up to twice the performance of your standard 68030 machine! Additionally, if you ever experience problems running specific applications in emulation mode, you can disable the Turbo 601 and use the motherboard's 68030.



The Turbo 601 supports Insignia Solutions' SoftWindows, which allows users to run Windows or DOS applications at up to 80486 speeds.

*NOTE: The Turbo 601 requires System 7.5 or greater, sold separately. It is recommended that you have at least 8 megabytes (MB) of random access memory (RAM) and 20 MB of hard disk space to install System 7.5. Also, you must upgrade any existing NuBus cards that are not PowerPC compatible in order to use them with the Turbo 601.*

### **Turbo 601 Software**

The Turbo 601 requires an Enabler file and a Control Panel to operate. The included DayStar Installer will install the necessary files onto your hard disk. Once you have completed the hardware installation of the Turbo 601, be sure to follow the instructions in the User's Guide for installing and using the software.

### **Installation tools required**

Installation tools required:

- Phillips screwdriver

### **Included with your Turbo 601**

**The Turbo 601 is shipped with the following parts:**

- Turbo 601 in an anti-static bag
- Turbo 601 User Manual
- Turbo 601 software disk
- Warranty card
- Anti-static wrist strap

We suggest that you retain the Turbo 601 packaging in the event that the card must be returned for service. If any of the parts listed above are missing when you receive your Turbo 601, please contact your computer dealer or call DayStar Customer Service (9 A.M. to 6 P.M. EST) at 404-967-2077 for further assistance. You can also contact DayStar online through CompuServe: 75300,1544, AppleLink: DAYSTAR.TECH, America Online: DAYSTAR OL, GENie: DAYSTAR or eWorld: DAYSTAR OL.

## Complete the warranty card

As DayStar continues to improve and enhance its product line, we would like to keep you informed of new product advancements and upgrade opportunities. Please take a moment to complete the product warranty card.

## About this manual

This manual provides basic information for installing and using the DayStar Turbo 601. If you are unfamiliar with using the Macintosh, review the Apple Owner's Guide before installing the board. Here's what you'll find in this manual:

- **Chapter 1:** "Getting Started" lists some precautions you should take before beginning the installation. It also includes a quick reference sections for installing the Turbo 601.
- **Chapter 2:** "Installing the Turbo 601 - Macintosh IIci" includes detailed instructions on preparing and installing Turbo 601 in a Macintosh IIci computer.
- **Chapter 3:** "Installing the Turbo 601 - IIvi, IIvx, Performa 600" includes detailed instructions on preparing and installing the Turbo 601 in a Macintosh IIvi, IIvx or Performa 600 computer.
- **Chapter 4:** "Installing and using the Turbo 601 Software" includes detailed instructions on installing and using the Turbo 601's required software.
- **Chapter 5:** "Troubleshooting" includes detailed instructions on troubleshooting problems with the system software and the Turbo 601 and also provides tips for improving your performance.
- **Appendix A:** "Product Support" includes the product specifications, warranty and instructions for returning the Turbo 601 for service.

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PART 1  
1970

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PART 1  
1970



## **Getting Started**

**The danger of static electricity**

**Precautions**

**Quick installation reference**

**Removing the Turbo 601**



## The danger of static electricity

*WARNING: The DayStar Turbo 601 uses electronic components that are sensitive to static electricity. When handling and installing the Turbo 601, you must take care to prevent the components from being damaged by static currents. Always work in an area of low static electricity and connect the anti-static bracelet to a grounded surface to prevent static discharge.*

## Precautions

Here is a brief list of precautions that help ensure proper grounding:

- PUT ON THE ANTI-STATIC WRIST STRAP
- DO NOT attempt installation on a carpeted floor.
- DO NOT wear leather shoes—we recommend shoes with rubber soles.
- DO NOT attempt installation in an overly dry environment— spray mist the work area with water prior to installation.
- DO NOT wear silk or polyester clothing while doing the installation—we recommend cotton clothing.
- REMOVE ALL JEWELRY (rings, bracelets, watches, etc.) before installation.

*NOTE: If you open your computer once the Turbo 601 is installed, don't touch the heat sink on the card. It can get very hot.*



## Quick installation reference

Please read all of the instructions before you start the installation procedure. If you are not experienced in the installation of the Turbo 601, we suggest that you follow the detailed instructions in the following chapters. If you are familiar with installing the Turbo 601, you may follow these steps:

1. Back up all hard drives.
2. Check your hard drives with Apple's Disk First Aid.
3. Update your hard drives' driver software with a version known to be compatible with the Power Macs. If you are using Apple HD SC Setup, update your drives using version 7.3.2 or greater. If you used a non-Apple formatter, contact the vendor to make sure your version is PowerPC compatible.
4. Turn off the Macintosh and remove all connectors and the power cord.
5. Remove the Mac cover.
6. Put on the anti-static wrist strap following the instructions on the package.
7. Remove any add-in cards from the motherboard cache/accelerator slot.
8. Orient the Turbo 601 over the motherboard cache/accelerator slot and press down until it is firmly seated.
9. Replace the cover and attach the power cord and other remaining cables.
10. Update your system software to a universal "system for all Macintoshes" version and then run the DayStar installer.
11. Restart the Mac - If any problems occur, see Troubleshooting, Chapter 5.

## Removing the Turbo 601

If you must remove the Turbo 601, follow the instructions below:

1. Turn off the Macintosh and remove all connectors and the power cord.
2. Remove the Mac cover.
3. Remove the Turbo 601 from the motherboard cache/Accelerator slot.
4. Replace the cover and make sure all cables are properly connected.

This concludes removal of the Turbo 601.

## **Installing the Turbo 601- Macintosh IIci**

**Preparing the Macintosh for installation**

**Installing the Turbo 601**

**Testing the installation**





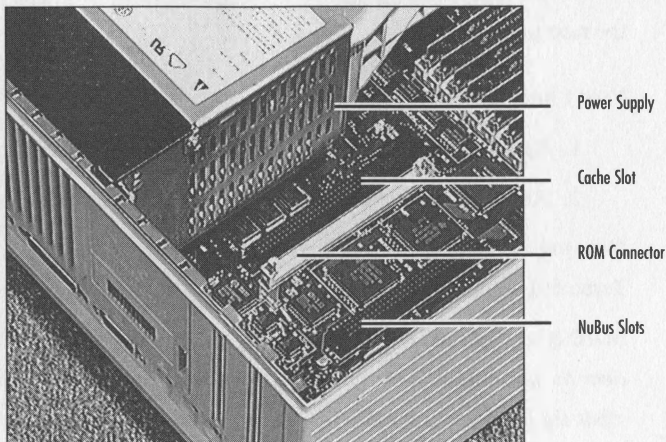
## Preparing the Macintosh for installation

DayStar designed the installation of the Turbo 601 to be easy. You must, however, take certain precautions:

1. Back up all hard drives before beginning the installation.
2. Check your hard drives with Apple's Disk First Aid.
3. Update your hard drives' driver software with a version known to be compatible with the Power Mac. If you are using Apple HD SC Setup, update your drives using version 7.3.2 or greater. If you used a non-Apple formatter, contact the vendor to make sure your version is PowerPC compatible.
4. Turn off the Mac and remove the power cord and all accessory cables.
5. Press the power switch on the rear of the Macintosh three times to drain the power supply.
6. Place the Macintosh on an unobstructed flat work area with the rear of the Macintosh facing you.

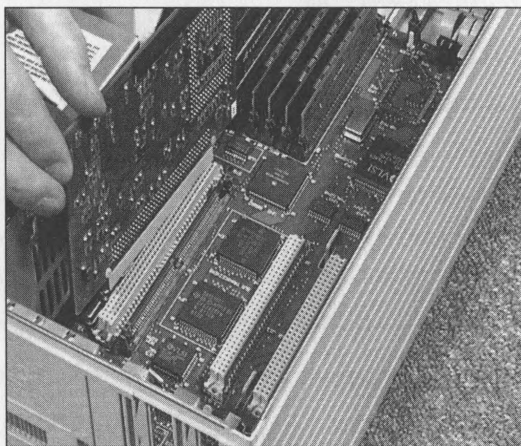
## Installing the Turbo 601

1. Open the Macintosh (This procedure is detailed in the Apple Getting Started reference guide).
2. Put on the anti-static wrist strap following the instructions on the package.
3. Locate the cache connector and remove any card that may be installed there.



View of the inside of the Macintosh IIfx

4. With the heat sink side of the Turbo 601 facing the power supply, align the board's connector over the 120 pin cache slot on the motherboard. Gently push the card down until it is fully seated.



Installing the Turbo 601

### Testing the installation

You have installed the Turbo 601. Make sure all connections are tight. You must now test the installation and install the software.

**Please read all of this section before you test the installation.**

Plug the power cord into the back of the Macintosh. Turn the Macintosh on. You should hear the customary “BONG”. If you do not hear the “BONG”, go to the next page.

**YES! I hear the “BONG”.**

1. Turn the power off and remove the power cord from the Mac.
2. Replace the case cover and screw. Attach all cables you have removed.

Now you are ready to install the software. Please go to Chapter 4, “Installing the Turbo 601 Software.”

*NOTE: If you hear the new PowerPC bong and the Mac does not boot properly, clear the parameter RAM by holding down the ⌘-Option-P-R keys simultaneously while the computer is starting up. (Make sure the Caps Lock key is not pressed.)*

**NO! I DO NOT hear the “BONG”.**

There is no response when the Macintosh is turned on.

or

A different sound (the failure tone) is heard when power is turned on.

If you experience any of the above, remove the power cord from the back of the Mac. Then, do the following:

1. Review the instructions and verify proper installation, making sure that the Turbo 601 is firmly seated in the cache slot.
2. If the failure tone was heard, make sure all of the SIMMs are properly installed.
3. Plug the power cord into the back of the Macintosh and restart as before.

If the startup process continues to fail, the board may have been damaged during installation or shipment. Contact your computer dealer or call DayStar Technical Support (9 am to 6 pm EST) at 404-967-2077 for further assistance. You can also contact DayStar online through CompuServe: 75300,1544, AppleLink: DAYSTAR.TECH, America Online: DAYSTAR OL, GENie: DAYSTAR or eWorld: DAYSTAR OL.





## **Installing the Turbo 601- Macintosh Ilvi, Ilvx, Performa 600**

**Preparing the Macintosh for installation**

**Installing the Turbo 601**

**Testing the installation**

# Installing the Turbo 500 Mechanical Jet, Jet, Venturi 600

Preparing the manifold for installation

Installing the Turbo 500

Setting the carburetor

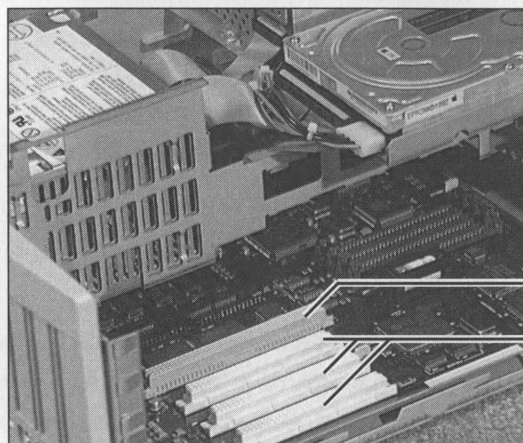
## Preparing the Macintosh for installation

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3. Update your hard drives' driver software with a version known to be compatible with the Power Mac. If you are using Apple HD SC Setup, update your drives using version 7.3.2 or greater. If you used a non-Apple formatter, contact the vendor to make sure your version is PowerPC compatible.
4. Turn off the Mac and remove the power cord and all accessory cables.
5. Press the power switch on the rear of the Macintosh three times to drain the power supply.
6. Place the Macintosh on an unobstructed flat work area with the rear of the Macintosh facing you.

## Installing the Turbo 601

1. Open the Macintosh (This procedure is detailed in the Apple Getting Started reference guide).
2. Put on the anti-static wrist strap following the instructions on the package.
3. Locate the accelerator slot and remove any card that may be installed there.

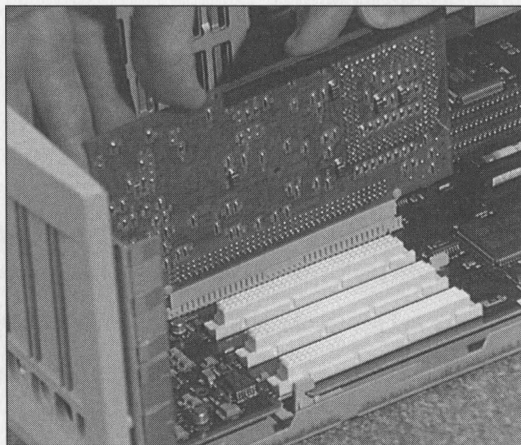


View of the inside of the Macintosh IIfx, IIfx+, Performa 600

## 3 INSTALLING THE TURBO 601 — MACINTOSH IIfx, IIfx+, PERFORMA 600

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4. With the heat sink side of the Turbo 601 facing the power supply, align the board's connector over the 120 pin accelerator slot on the motherboard. Gently push the card down until it is fully seated.



Installing the Turbo 601

### Testing the installation

You have installed the Turbo 601. Make sure all connections are tight. You must now test the installation and install the software.


**Please read all of this section before you test the installation.**

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**YES! I hear the “BONG”.**

1. Turn the power off and remove the power cord from the Mac.
2. Replace the case cover and screw. Attach all cables you have removed.

Now you are ready to install the software. Please go to Chapter 4, “Installing the Turbo 601 Software.”

*NOTE: If you hear the new PowerPC bong and the Mac does not boot properly, clear the parameter RAM by holding down the -Option-P-R keys simultaneously while the computer is starting up. (Make sure the Caps Lock key is not pressed.)*

**NO! I DO NOT hear the “BONG”.**

There is no response when the Macintosh is turned on.

or

A different sound (the failure tone) is heard when power is turned on.

If you experience any of the above, remove the power cord from the back of the Mac. Then, do the following:

1. Review the instructions and verify proper installation, making sure that the Turbo 601 is firmly seated in the cache slot.
2. If the failure tone was heard, make sure all of the SIMMs are properly installed.
3. Plug the power cord into the back of the Macintosh and restart as before.

If the startup process continues to fail, the board may have been damaged during installation or shipment. Contact your computer dealer or call DayStar Technical Support (9 am to 6 pm EST) at 404-967-2077 for further assistance. You can also contact DayStar online through CompuServe: 75300,1544, AppleLink: DAYSTAR.TECH, America Online: DAYSTAR OL, GENie: DAYSTAR or eWorld: DAYSTAR OL.



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## **Installing and using the Turbo 601 Software**

**Updating the system software**

**Installing the Turbo 601 software**

**Using the Turbo 601 software**

**Advanced Features**

**Advanced system information**

**Installing new application programs**

**Using application programs designed for the  
PowerPC**

**Shared libraries**

# Retelling and Using the Story

5

Retelling the story

Retelling the story

Retelling the story

Retelling the story

Retelling the story

Retelling the story

Retelling the story

Retelling the story

Retelling the story

*NOTE: Check the Last Minute Additions & Info file on the DayStar disk for late breaking news or changes.*

## Updating the system software

The Turbo 601 requires version 7.5 or greater of Apple's system software. Because the Turbo 601 gives you the option of running in PowerPC mode or 68030 mode, you must have the system software for both environments. To install a "universal" version of the system software, follow these steps:

*Note: these instructions are for installing a universal version of System 7.5. If you are installing a newer version of the system software consult the instructions that accompanied the software for information on installing a universal system.*

1. Shut down your computer.
2. Insert the appropriate System Installer disk into a floppy disk drive.
3. Turn on the computer.
4. Run the Installer by double-clicking its icon.



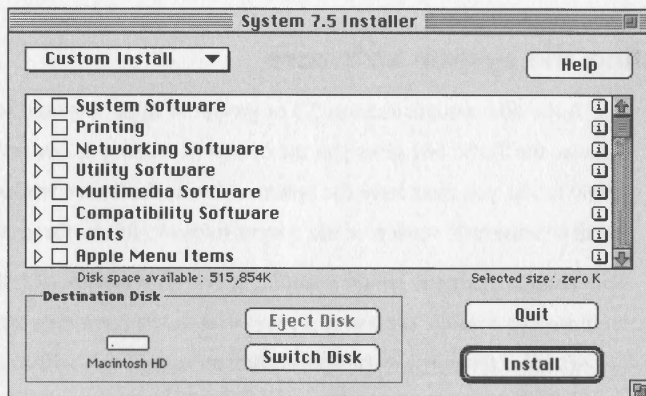
Installer

5. When you see the Installer's welcome screen, click Continue.

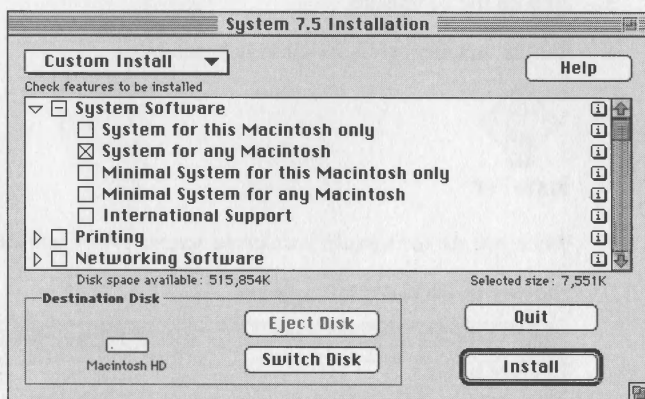
The Easy Install dialog box appears.



6. Open the pop-up menu and choose Custom Install. The Custom Install dialog box appears.



7. Click the triangle next to System Software so the triangle points down. Select System for any Macintosh.



8. Select any additional software you wish to install. To see information about an item, click the information box (marked with an i) across from it.
9. Make sure that the destination disk listed is the one on which you want to install software. If the wrong disk name appears, click the Switch Disk button until the correct disk name appears.
10. Click Install.
11. Follow the instructions on the screen, inserting disks as needed. It takes a few minutes to complete the installation.



12. After the installation is complete, restart your computer.

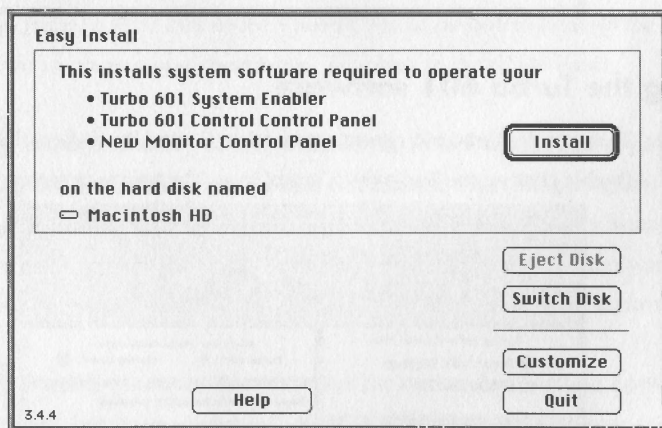
If for some reason the installation was not successful, try again.

*If you can't restart the computer:* See Chapter 5 "Troubleshooting."

## Installing the Turbo 601 software

1. Insert the DayStar Files disk into a floppy disk drive.
2. Run the Turbo 601 Installer by double-clicking its icon.
3. When you see the Installer's welcome screen, click Continue.

The Easy Install dialog box appears.



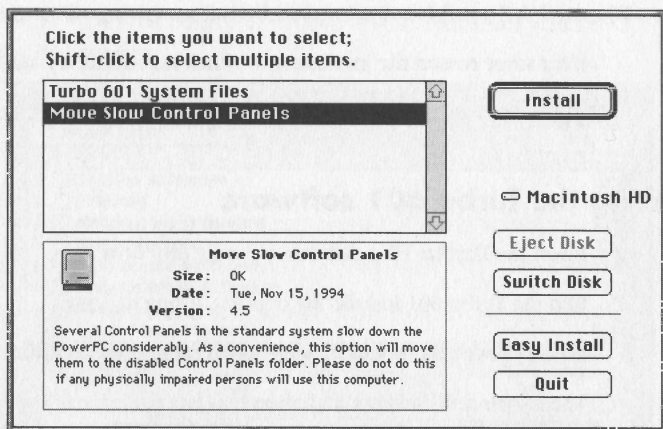
4. Click Install.
5. When the installation is completed, restart the computer. It should boot as a PowerPC, if not see Chapter 5 "Troubleshooting."

### Moving slow Control Panels

Several Control Panels in the standard system drastically reduce PowerPC performance. The Customize option gives you the ability to move these control panels to the Disabled Control Panels folder in your System folder.

*NOTE: These files currently consist of CloseView and Easy Access, which were designed for the physically challenged. Please do not move these files if physically impaired persons may be using this Macintosh.*

## 4 INSTALLING AND USING THE TURBO 601 SOFTWARE



### Using the Turbo 601 software

To access the Turbo 601 control panel, select Control Panels from the Apple menu. Double click on the Turbo 601 Control icon. The following screen will appear:



A checked box means the corresponding feature is turned on.



**Balloon Help.** To make it even easier to access Balloon Help, DayStar has added a button to Turbo 601 Control that turns Balloon Help on and off.

**Currently Running:** Shows whether the Turbo 601 or the motherboard 68030 is currently being used and the speed at which it is operating.



**Turbo 601 Startup.** Allows you to turn on Turbo 601 the next time you restart the machine.



**68030 Startup.** Allows you to run from the motherboard 68030 the next time you restart the machine.

*NOTE: When the computer restarts, you may notice that your computer's startup sound is different. The startup sound depends on the processor the computer uses.*

*ALSO NOTE: RAM disk information will be lost when switching modes. If you have created a RAM disk in the PowerPC mode, be sure to back up the information you have stored there before switching to the 68030 mode.*



**Modern Memory Manager** allows you to turn Apple's Memory Manager on and off. The default is on. For best performance when using programs designed for the PowerPC, you should turn on the Modern Memory Manager. Some older applications may not work properly with the new memory manager turned on. NOTE: This feature is also accessible from the Memory control panel.



**Disable Memory Test** provides the option for disabling Apple's extensive, but time consuming, memory test. A quick and simple test is performed in its place, which, depending on the amount of memory installed, can significantly decrease the time required to boot your Mac.

**Menu Bar Mode Indicator** allows you to add an icon to the menu bar to show which processor the Macintosh is currently using.



**Turbo 601.** Shows that the Turbo 601 is currently being used.

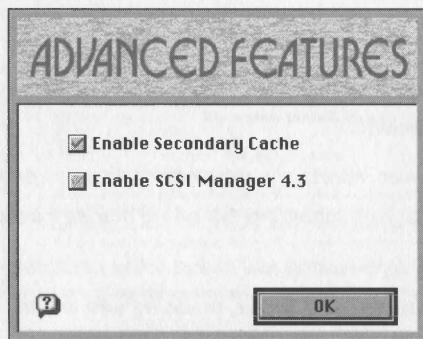


**68030.** Shows that the motherboard 68030 is currently being used.

With the Menu Bar Mode Indicator you have the option of having the icon appear on the left or right side of the menu bar, or you can disable it completely.

### Advanced Features

Clicking on the Advanced Features button of the Turbo 601 Control displays the following dialog box:

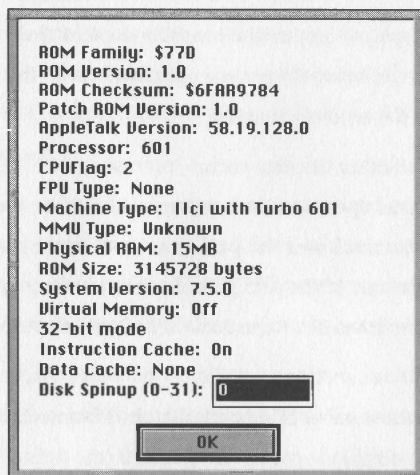


☒ **Enable Secondary Cache** allows you to turn the Turbo 601's secondary cache on and off. This secondary cache greatly increases the performance of the Turbo 601. The ability to disable the cache is primarily provided as a troubleshooting feature. The default is on. Changes take effect immediately.

☒ **Enable SCSI Manager 4.3** allows you to turn Apple's improved SCSI Manager version 4.3 on and off. When this feature is turned on, NuBus SCSI controller cards can take advantage of SCSI Manager 4.3. The default is off.

## Advanced system information

Turbo 601 Control will provide a display of your current system information by pressing COMMAND-CONTROL and clicking on the Turbo 601 logo in control panel's main screen. A dialog box similar to the one below will be displayed:



**ROM Family:** indicates the family of the ROM installed in your machine.

**ROM Version:** indicates the version of ROM installed in your machine.

**ROM Checksum:** differentiates between machines with the same ROM Version.

**Patch ROM Version:** indicates the version of Patch ROM installed in the Turbo 601.

**AppleTalk Version:** the version of AppleTalk installed. It will display 0.0.0.0 if AppleTalk is inactive or not installed.

**Processor:** shows the type of CPU the system thinks it has installed.

**FPU Type:** shows the kind of math coprocessor installed.

**Machine Type:** is the kind of machine.

**MMU Type:** is the kind of memory management unit installed.

**Physical RAM:** displays the amount of memory installed on the motherboard.

**ROM Size:** shows the size of the Macintosh ROMs on your machine.



**System Version:** is the version of System software you are running.

**Virtual Memory:** tells you whether Virtual Memory (either by Apple or Connectix) is on or off.

**32/24-bit mode:** shows whether the system is running in 32 or 24 bit mode.

**Instruction Cache:** displays whether the instruction cache (internal to the CPU) is on or off. It should be on for normal operation. Note: the instruction cache is different from the secondary cache.

**Data Cache:** displays whether the data cache (internal to the CPU) is on or off. It should be on for normal operation. Some system extensions, such as A/ROSE, can disable the data cache and lower the performance of your system. If your Mac does not require the use of the A/ROSE software, we recommend that it be removed from your hard drive. Note: the data cache is different from the secondary cache.

**Disk Spinup:** displays the number of seconds that the Macintosh will wait at power up for your hard disk(s) to spin up. A value of 0 (the default) will cause the Macintosh to wait for 15 seconds. A maximum of 31 seconds can be specified.

## Installing new application programs

Once you have followed the steps earlier in this chapter, the full capabilities of the new PowerPC processor are in effect.

Your upgraded Macintosh is compatible with most software intended for use with Macintosh computers. Certain application programs (sometimes called “native applications”) are designed especially for computers with the new PowerPC microprocessor. These programs take best advantage of your computer’s speed.

If you purchased a program designed for use with the PowerPC microprocessor, you can install them now by following the instructions that came with them. Be sure that you have the Turbo 601 turned on during the installation to insure that the PowerPC version of the program is installed.

If you have problems installing a program, see the manual that came with the program or call the software publisher for assistance.

## Using application programs designed for the PowerPC

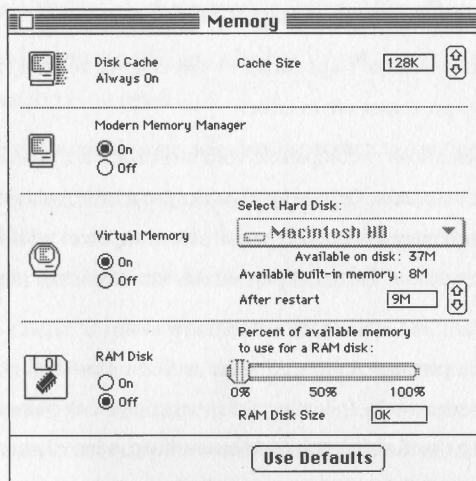
Some of the new PowerPC programs may require more memory (RAM) to work than other programs. If you run out of memory when you use these programs, you can use space on your computer’s hard disk as additional memory. This feature is called *virtual memory*.

Turning on virtual memory increases the amount of available memory, but it may slightly reduce your programs’ speed. If maximum speed is important, you can install more memory in your computer.

*NOTE: RAM Doubler, a product from Connectix Corporation, provides features similar to Apple’s virtual memory but without decreasing performance as significantly. For more information contact Connectix at 800-950-5880.*

To turn on Apple’s virtual memory, follow these steps:

1. Choose Control Panels from the Apple () menu and open the Memory control panel.
2. Turn on Virtual Memory.



3. Set the virtual memory size (in the “After restart” box) to the size of the available built-in memory plus 1.
4. Close the control panel by clicking the close box in the upper-left corner.
5. Choose Restart from the Special menu.

## Shared libraries

Programs designed for the new PowerPC chip use special files called *shared libraries*. Any necessary shared libraries are installed automatically in the System Folder when you install these programs.

If a program requires a shared library and there is not enough memory available for the shared library, you see a message that the program could not be opened because there is not enough system memory available for the shared library.

You can solve this problem by turning on virtual memory as described in the previous section, “Using application programs designed for use with the PowerPC.”

If a required shared library is missing, you see a message that the program could not be opened because the shared library could not be found. If this happens, reinstall the program, following the directions that came with it. If the shared library is still missing, contact the program’s publisher for assistance.

## **Troubleshooting**

**Problems installing system software**

**Using older Macintosh programs**

**Problems using the Turbo 601**

**Testing for compatibility**

**Performing a clean system installation**

**Incompatible formatting software**

**Performance notes**

# Introduction

The purpose of this study is to investigate the effects of the proposed system on the performance of the system.

The study is organized as follows: Chapter 1 introduces the system and the objectives of the study.

Chapter 2 describes the system architecture and the components of the system.

Chapter 3

describes the experimental setup and the data collection process.

Chapter 4 presents the results of the experiments and discusses the findings.

Chapter 5 concludes the study and provides recommendations for future work.

The study is based on the following assumptions:

1. The system is used by a large number of users.

2. The system is used for a long period of time.

3. The system is used in a controlled environment.

4. The system is used by a single user at a time.

5. The system is used in a standard configuration.

## Chapter 1

The purpose of this study is to investigate the effects of the proposed system on the performance of the system. The study is organized as follows: Chapter 1 introduces the system and the objectives of the study.

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The study is based on the following assumptions: 1. The system is used by a large number of users. 2. The system is used for a long period of time. 3. The system is used in a controlled environment. 4. The system is used by a single user at a time. 5. The system is used in a standard configuration.



## Problems installing system software

This section helps you solve problems you might encounter while installing System 7.5 or greater and related software.

### Not enough memory to use the Installer

When you try to use the Installer, you see a message that the Installer is out of memory. Usually this means that your disk cache or RAM Disk is set too high.

- Quit all open application programs. Open the Memory control panel, set your disk cache to the lowest possible setting and turn on Virtual Memory.

### Not enough memory to install the software

When you try to use the Installer, you see a message that your computer doesn't have enough memory to install the software. This means that your Macintosh has less RAM (random-access memory) than is required to use System 7.5 or greater.

- Contact your reseller for information on purchasing additional memory.

### Not enough disk space

When you try to use the Installer, you see a message that there is not enough disk space available to install the software.

- Make more space available on your hard disk by removing some files from the disk. Make backup copies of the files, if necessary, and then drag them to the Trash and choose Empty Trash from the Special menu.
- If you are installing from floppy disks, you can also try starting up your Macintosh using the *Install Me First* disk. Using the Installer this way requires less disk space.

### Difficulty modifying the System file

When you try to use the Installer, you see a message that the System file cannot be modified (or repeated messages asking if it's okay to modify the System file).

- If virus-protection software is turned on, turn it off by dragging it out of the System Folder and restarting your computer. Turn it back on after installation.

- Try disabling your extensions by holding down the Shift key while you restart the computer (If you are installing over a network, you cannot use this solution).
- Your System Folder may be protected, or the System and Finder files may be locked. To turn off System Folder Protection, use the Performa control panel or the General Controls panel (depending on your version of system software). To see if your System file or Finder file is locked, select the file's icon, then open the File menu and choose Get Info. To unlock the file, click the Locked checkbox to remove the X. Restart your computer and make sure that the System file and Finder file are unlocked.

### Problems using the Turbo 601

This section helps with problems you might encounter using the computer after installing the Turbo 601.

#### **You can't start up the computer**

When you turn on your computer, you see a "bomb" message.

- You probably have an incompatible item in the System Folder. To turn off potentially incompatible items in the System Folder, hold down the Space bar while you restart your computer. When the Extensions Manager opens, choose "System 7.X Only" from the Sets pop-up menu. Close the Extensions Manager to resume startup. All extensions are turned off, except those installed with System 7.5 or greater. Once you have started up the computer, you need to determine which startup program is causing the problem. For instructions, see "Testing for Compatibility" later in this chapter.
- Your system software may be damaged. Start up the computer using the *Disk Tools* disk that came with the upgrade card. When you have restarted the computer, follow the instructions in "Performing a Clean Installation" later in this chapter.

### **You often encounter problems that require you to restart the Mac**

As you work in an application program, you often encounter problems that require you to restart the computer.

- You may have an incompatible item in the System Folder, or your application may be incompatible with System 7.5 or greater. To turn off potentially incompatible items in the System Folder, hold down the Space bar while you restart your computer. When the Extensions Manager opens, choose "System 7.X Only" from the Sets pop-up menu. Close the Extensions Manager to resume startup. All extensions are turned off, except those installed with System 7.5 or greater.

For compatibility information on application programs, contact the publisher.

### **You can't open a program, it quits unexpectedly, or you see a message that not enough memory is available to open the program.**

The program needs more memory, or the Macintosh ran out of memory.

- Quit the programs that you have open and then open the program you want to use. If that doesn't work, restart your Macintosh.
- Use the program's Info window to give the program more memory. (Quit the program if it's open, select the program's icon, choose Get Info from the File menu, and increase the numbers in the "Minimum size" and "Preferred size" boxes at the lower right.)
- Turn on virtual memory in the Memory control panel.
- Install more RAM in your computer.
- If the program is not designed specifically for use with the PowerPC, use the Turbo 601 Control panel to turn off the Turbo 601 and restart.

### **You see a message that your application program can't be opened because a file can't be found.**

Programs designed specifically for the PowerPC microprocessor use special files called *shared libraries*. Any necessary shared libraries should be automatically installed in the System Folder when you install these programs.

- Follow the directions that came with your program and reinstall. If the shared library is still missing, contact the program's manufacturer.

## **You can open a program but it doesn't work properly, or you see messages reporting system errors.**

The Turbo 601 has been tested extensively with existing programs. However, a few older programs may have compatibility problems.

- Turn off the Modern Memory Manager in the Turbo 601 control panel (also located in the Memory control panel) and restart your computer. Be sure to turn the Modern Memory Manager back on when your finished.
- You may need to turn off the card when using the program. Use the Turbo 601 control panel to turn off the card, then restart the computer.

*NOTE: For best performance, contact the program's publisher for an upgrade.*

## **A program runs more slowly than it did before installing the card.**

- Some programs are designed to run optimally with the 601 processor. These programs are referred to as being native or "Accelerated for Power Macintosh." Other non-native programs may run faster if you turn off the card when you use them. Use the Turbo 601 control panel to turn off the Turbo 601.
- If the program is not PowerPC native, contact the program's manufacturer to see if a PowerPC upgrade is available.
- If the program is PowerPC native, make sure that the Turbo 601 was turned on during the program's installation. Some program installers detect which processor is being used and only install a version for that processor. Also be sure that the Modern Memory Manager is turned on.

## **You run out of memory when using programs designed for the PowerPC microprocessor.**


- Turn on virtual memory in the Memory control panel to make more memory available. For the best performance while using virtual memory, set the virtual memory size in the Memory control panel to the size of the available built-in memory plus 1.
- Install more memory in your computer.

**The pointer movement on screen is jerky.**

- Clean the mouse or trackball.
- Use the Memory control panel to turn off virtual memory.
- Install more memory in your computer.

**The computer behaves strangely or has problems starting up with the Turbo 601 card turned on.**

It may help to clear out all the computer's settings (PRAM).

- Hold down the -Option-P-R keys simultaneously while the computer is starting up. (Make sure the Caps Lock key is not pressed.) After restarting, you will need to turn on the Turbo 601 using the Turbo 601 control panel. You may need to use other control panels to adjust your settings for the date, time, monitors, and file sharing, and you may need to reselect your printer in the Chooser.

## Testing for compatibility

If your Macintosh does not start up properly or behaves erratically, you may have a startup program (also known as a system extension or control panel) that's incompatible with your system software.

This section tells you how to remove startup programs that are incompatible with the PowerPC or with System 7.5 or greater.

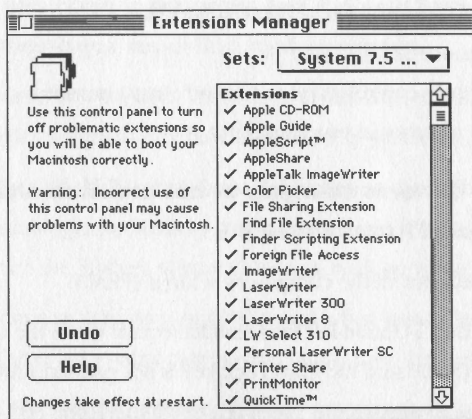
**Remove incompatible startup programs**

To verify that you have a compatibility problem and test individual programs, follow the steps below.

**Verify the problem**

1. Start up your computer, holding down the space bar.  
Holding down the space bar opens the Extensions Manager control panel during startup.
2. Release the space bar when the Extensions Manager control panel opens.





3. Open the Sets menu and choose “System 7.X only.” This turns off all extensions and control panels except those installed with System 7.5 or greater.
4. Close the Extensions Manager to continue startup.
5. When the computer is ready, try the same actions that caused the problem.

If the problem no longer occurs, you probably have an extension or control panel that doesn't work with the PowerPC. Continue with the next section.

## Test individual extensions and control panels

1. Start up your computer, holding down the space bar. Holding down the space bar opens the Extensions Manager control panel during startup.
2. Release the space bar when the Extensions Manager control panel opens.
3. To turn on one of the extensions or control panels by clicking its name.
4. Close the Extensions Manager to continue startup.
5. When the computer is ready, try the same actions that caused the problem.

If the problem does not occur again, then the item is probably compatible with the PowerPC and System 7.5 or greater.

If the problem occurs again, the program is probably incompatible. Open the Extensions Manager and click the program's name to remove the check.

6. Repeat steps 1 through 5 for each item you want to test.

## Performing a clean system installation

This section provides instructions for what is commonly called a “clean” installation of system software onto hard drives.

Clean installation renames your System Folder and installs a new System Folder on your hard disk drive. Any special files you’ve added to your System Folder remain on your hard disk, and you can install them into your new System Folder after you install the system software.

**IMPORTANT** You should perform a clean installation only if you suspect that the system software on your startup disk is damaged.

1. Shut down your computer.
2. Insert the *Disk Tools* disk (from System 7.5 or greater) into the floppy drive.
3. Turn on your computer. The Disk Tools icon appears on your screen.
4. Double-click the Disk First Aid icon and follow the on-screen instructions.

Disk First Aid checks your hard drive for any problems.



Disk First Aid

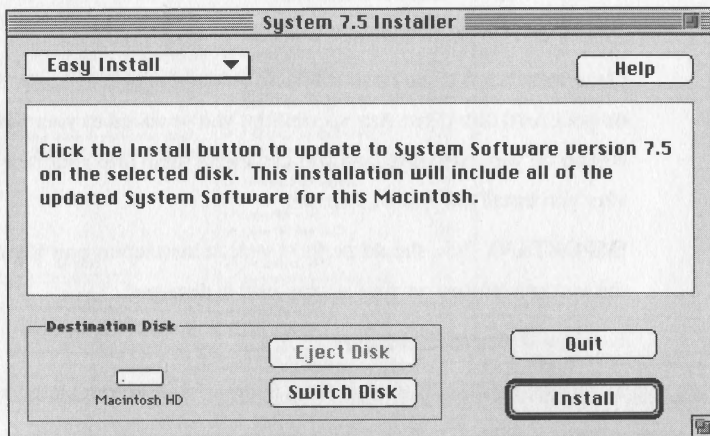
5. When you are finished, choose Quit from the File menu.
6. Choose Restart from the Special menu.
7. When you see the blinking question mark icon, insert the *Install Me First* disk into a floppy disk drive and open the disk by double-clicking its icon.
8. Open the Installer by double-clicking its icon.



Installer

9. When you see the Installer's welcome screen, click Continue.

The Easy Install dialog box appears.

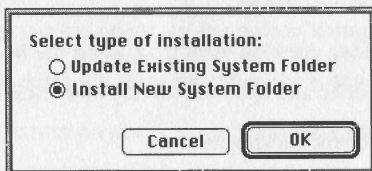


10. Make sure that the Destination Disk indicated on the screen is the one on which you want to install system software.

If the wrong disk name appears, click the Switch Disk button until the correct disk name appears.

11. Hold down Shift-⌘-K to start the clean installation.

The following dialog box appears.



12. Click the Install New System Folder button and click OK.

The dialog box closes. In the Easy Install dialog box, the Install button changes to Clean Install.

13. Follow the instructions on the screen.

On-screen messages tell you when you need to insert other disks. It takes a few minutes to complete the installation.

14. When you see a message reporting that the installation was successful, you may need to click Restart. (You need to restart only if you installed software onto the startup disk.)
15. Run the DayStar Installer to reinstall the Turbo 601 software. See "Installing the Turbo 601 software" in Chapter 4.
16. You may want to copy some other files (such as screen savers or other personalized items) from the "Previous System Folder" into the new System Folder. Be sure to test these items for compatibility by following the instructions in the previous section, "Testing for compatibility".

## Incompatible formatting software

Some older formatters are not compatible with the PowerPC CPU. Upgrading to the latest release of your formatting software and updating your disk's driver will solve the problem.

If you failed to update your driver during the installation of the Turbo 601 and are experiencing problems, remove the Turbo 601, update the disk driver and then reinstall the card. If you do not know which software was used to format your troublesome disk, contact the vendor that sold it to you. If you cannot find out which formatter was used or you don't have access to it, you can try to update the driver with a different formatter, being sure to back up your data first. If this fails, you will need to reformat the disk, again making sure you use a PowerPC compatible version of the formatter.

**A note on Blind Transfers.** Many third party (non-Apple) formatters provide a "blind transfers" option for faster SCSI performance. Because the reliability of blind transfers is less than standard handshaking, we typically suggest that you disable the blind transfers feature before installing the Turbo 601.

### Performance notes

Here are a few tips to get the most from your Turbo 601:

- Whenever possible, keep the Modern Memory Manager turned on.
- If you are using an accelerated video card, contact the vendor to be sure that you have the latest software and/or firmware that allows the card to operate in accelerated mode with the PowerPC.
- Upgrade your non-native applications, control panels and extensions to PowerPC versions as they become available.
- As Apple updates the operating system, additional portions of it may become native. By upgrading, you can increase your performance.
- If you have a NuBus SCSI controller card in your Mac, see Chapter 4 for information on enabling SCSI Manager 4.3 in the Turbo 601 control panel.
- Vary the size of the Apple Disk Cache, located in the Memory control panel, to find an optimal setting for your system. Some hard drives and specific applications perform better with the cache set to its minimum.
- Keep the number of control panel and system extension files that you have in the System Folder to a minimum. If you find that you are not using the features of such a file, turn it off with the Extension Manager. Not only can these files cause conflicts with one another, they can also rob the system's performance, especially if they are not written in the native PowerPC format.



## **Product Support**

**Product specifications**

**Product warranty**

**How to return your board for service**

**Contacting DayStar online**

# 1900-1901

The first year of the new century was marked by a series of events that would shape the future of the world. The Spanish-American War ended in 1898, and the United States emerged as a major power. The Boer War in South Africa was also fought during this period.

The year 1900 was a year of significant events. The Boxer Rebellion in China was suppressed, and the United States sent the Great White Fleet on a world tour. The 1900 Summer Olympics were held in Paris.

The year 1901 was also a year of significant events. The Titanic sank in April, and the Wright brothers flew the first powered airplane in December. The 1901 Summer Olympics were held in London.

The year 1902 was a year of significant events. The 1902 Summer Olympics were held in London. The 1902-1903 season was a year of significant events.

The year 1903 was a year of significant events. The 1903 Summer Olympics were held in London. The 1903-1904 season was a year of significant events.

## **Product specifications**

### **System Requirements**

- Apple® Macintosh Ilci, Ilvi, Ilvx and Performa 600
- Minimum of 8 MB of random-access memory (RAM)

### **Processor**

- PowerPC™ 601
- 66 MHz or 100 MHz clock speed

### **Processor Cache**

- Built-in 32KB unified instruction and data cache
- 256K secondary, Level 2 cache

### **ROMs**

- Apple® PowerPC™ ROMs

### **Memory**

- Uses existing motherboard memory

### **Software requirements (not included)**

- Apple® System 7.5

### **Three Year Limited Warranty**

## Product warranty

DayStar Digital, Inc. warrants that for no additional charge it will repair or replace, at its option, any defective products properly returned to our factory for a period of THREE (3) FULL YEARS from the date the product is purchased by the original enduser.

This warranty does not apply if the hardware product has been damaged by accident, misuse, abuse, installed with non-compatible products, modified in any way or if the serial number has been removed or defaced. This warranty does not apply to damage or failure of the host computer power supply, analog and/or CPU logic board or any other add-in boards. This warranty is extended only to original endusers.

THE GUARANTEE, WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS, ORAL OR WRITTEN, EXPRESS OR IMPLIED. DAYSTAR IS NOT RESPONSIBLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR UNDER ANY LEGAL THEORY, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DOWNTIME, GOODWILL, DAMAGE TO OR REPLACEMENT OF EQUIPMENT AND PROPERTY AND ANY COSTS OF RECOVERING, PROGRAMMING OR REPRODUCING ANY PROGRAM OR DATA STORED OR USED WITH DAYSTAR PRODUCTS.

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## How to return your board for service

If you believe service is needed, please call the DayStar Technical Support Department for assistance at 404-967-2077 before you return the product. Many times we can solve problems without asking you to send the board in for service. If the board does require service within the first 30 days of purchase, please contact your dealer first.

We will be happy to serve you. Items returned for service must have an RA (Return Authorization) number, which will be issued to you or your dealer when you call DayStar's Technical Support Department. Returned items must be sent back in good condition, unmodified and undamaged, with the board packaged in the provided anti-static bag and with shipping charges prepaid. DayStar will repair or replace the board and ship it back to you or your dealer. For each item you return, you must enclose your name, address, telephone number, RA number, a description of the problem and a copy of the bill of sale bearing the appropriate DayStar serial numbers as proof of the original date of purchase.

*NOTE: Products returned without appropriate authorization on the outside of the package will not be accepted upon arrival at DayStar.*

Please direct all correspondence and technical questions to:

DayStar Digital, Inc.  
Technical Support Department  
5556 Atlanta Highway  
Flowery Branch, GA 30542  
404-967-2077  
AppleLink (DAYSTAR.TECH)  
CompuServe (75300,1544)  
America Online (DAYSTAR OL)  
GENie (DAYSTAR)  
eWorld (DAYSTAR OL)



## Contacting DayStar online

### **CompuServe:**

You can contact DayStar through our forum, Macintosh A Vendor Forum Section 6 or at our EMail address: 75300,1544.

### **AppleLink:**

Our software is available at the following location: Third Parties; Third Parties D-G; DayStar Digital; File Library/Utilities. Our Link address is: DAYSTAR.TECH.

### **America Online:**

DayStar's forum is in the Industry Connection Area. Our address is: DAYSTAR OL.

### **GEnie:**

Type "M606,1" then "SET5" Page 606,2 - Category 5

### **eWorld:**

Our address is: DAYSTAR OL.

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We appreciate comments you may have on this manual. This manual was designed and produced on a Macintosh with DayStar upgrades installed.

Part Number: 81-00474

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Manual version number 1.0, 11/94.

DM, BW, GD<sup>2</sup>, GS, HK, JS, KF



# Constructing DryStar online

## Introduction

The first stage of the project was to develop a set of guidelines for the project. These guidelines were developed in 1994.

## Guidelines

The guidelines were developed by the project team. They were developed in 1994.

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**5556 Atlanta Highway  
Flowery Branch, GA 30542  
404.967.2077 Fax 404.967.3018**

**81-00474**